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ABSTRACT

This sourcebook on educational technology materials was developed in conjunction with a regional workshop on "The Use of Educational Technology by Teachers," which was held in September 1985 and attended by participants and observers from Bangladesh, India, Indonesia, Japan, Malaysia, New Zealand, the Philippines, the Republic of Korea, Sri Lanka, and Thailand. The first of three chapters in this sourcebook provides a brief discussion of ways in which educational technology materials can be used to achieve some broad educational outcomes. The types of media produced in the participating countries are outlined in the second chapter, which also suggests 11 criteria for the selection and/or production of multimedia materials and 17 steps for the development of such materials. Materials brought to the workshop by the participants for demonstration and evaluation are then briefly described, and a table displaying the results of the evaluations concludes the chapter. The third chapter discusses the use of multimedia kits to solve teaching problems and describes the design and use of multimedia kits for three specific situations: (1) a kit for one teacher schools in India; (2) a kit for shared reading in multicultural classes at the elementary level in New Zealand; and (3) three multimedia kits prepared by the Korean Educational Development Institute (KEDI) for teaching in large classes. One of the KEDI kits is designed for use by elementary students and the other two for teacher training programs at the elementary level. (EW)

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ED 291 345

PREPARING MULTI-MEDIA TEACHING MATERIALS

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PREPARING MULTI-MEDIA TEACHING MATERIALS

a source book

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Preface

During September 1985, an APEID Regional Training Workshop on the Use of Educational Technology by Teachers was jointly organized by the UNESCO Regional Office for Education in Asia and the Pacific and the Korean Educational Development Institute (KEDI).

The Workshop was attended by one participant each from Bangladesh, India, Indonesia, Japan, Malaysia, New Zealand, the Philippines and Sri Lanka; three participants each from Thailand and the host country – Republic of Korea as well as two observers each from the Republic of Korea and Thailand.

The Regional Workshop addressed itself to the following purpose: to contribute through exchange of experience among the participants to the development of national capacities for the planning, production, utilization and evaluation of effectiveness of innovative educational technology methods and materials, designed to promote the use of educational technology, for solving some specific problems of teaching.

Such specific problems of teaching, encountered in many countries of the region of Asia and the Pacific, have been identified as follows:

a) teaching in one-teacher schools (i.e. one teacher attending simultaneously to different age group learners);

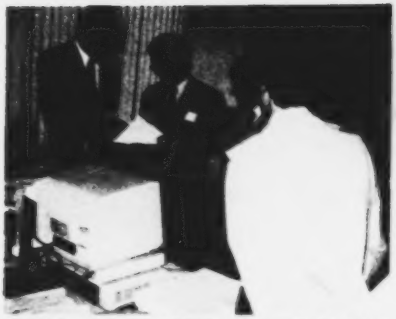
b) teaching in large classes (where the student/teacher ratio is abnormally high); and

c) teaching in minority and/or multi-cultural classes, (where the language of instruction is frequently different from the mother tongue of the pupil, spoken in his or her family).

The UNESCO Regional Office for Education in Asia and the Pacific, through its Asian Centre of Educational Innovation for Development, recognizing the needs of many countries to develop

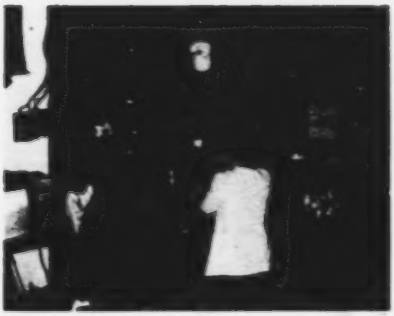
various educational technology materials to be used both in teacher training and in schools that are exposed to the above described specific problems of teaching, prepared, with the active assistance of the resource person Prof. Rex Meyer, Fellow in Continuing Education, from Macquarie University, Sydney, Australia, some guidelines for development of various educational technology materials; and more specifically – multi-media kits, specially designed to solve these problems of teaching. These guidelines are interwoven in the contents of the present Resource Book.

Following these guidelines, prior to the Regional Workshop on the Use of Educational Technology by Teachers, institutions in three of the participating countries, namely India, New Zealand and the Republic of Korea prepared multi-media kits, specially designed to solve specific problems in teaching in one-teacher schools, in minority and multi-cultural classes and in large classes. The kits were presented during the workshop and evaluated by the participants with a view to their usefulness and applicability in their own countries. These multi-media kits are described in Chapter Three.



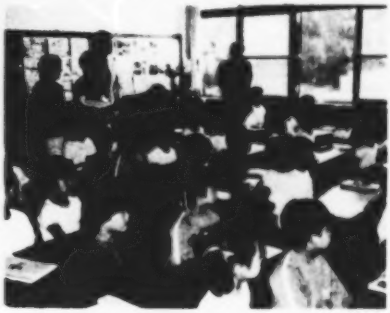
Participants of APEID Regional Training Workshop discussing the software materials.

Primary students in Han Nam Elementary School in Seoul take turns to use the limited number of computers available in a large classroom.



Students and teachers of Han Nam Elementary School produce educational video tape programmes for largescale school use in Korea, using their own TV production studio: A folk story recorded by video camera (left) The video programme used as part of multi-media package in a large class, where 50 students watch a large TV screen from their seats (bottom).

Centrally scheduled educational radio broadcasting is incorporated in the multi-media approach in many primary school subjects. Two different classes during a radio programme on Korean history, at the start and at the end of the broadcast.



Multi-media kits are useful in promoting students' creativity both in the classroom situation and out of school.

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Chapter One

INTRODUCTION

For centuries the only media of instruction used by teachers have been chalk and talk, aided by textbooks. Gradually, visualization through models, charts and pictures, introduced the first visual aids used in teaching. New inventions, like recording of sound and projection, implemented in the teaching process, opened the era of audio-visual aids, and the technological development brought newer, modern educational technology equipment, methods and techniques.

For a long period of time most of the developing countries could meet the induced demand resulting from the expansion of their educational systems primarily by importing educational materials and equipment; but recently there has been a strong tendency to promote local production of many teaching aids, suitable to the needs of the country, and to various local environmental conditions.

Broad educational outcomes that are achieved through the use of educational technology materials include the following:

1. The use of educational technology contributes to the development of creativity, initiative and critical ability of the learner. These faculties are developed if educational technology is used:

   a) for problem solving;

   b) as device for independent study;

   c) as resource to help learners make evaluative decisions about the merits of two alternative ideas, proposals, or procedures; and

   d) as instructional guides for creative thinking and discovering knowledge and facts.

2. The use of educational technology helps the development of a sense of responsibility in the following ways:

a) many educational technology components and items of equipment need to be carefully maintained by the user;

b) the storage, borrowing, retrieval and monitoring the use of such equipment can be entrusted to the learners themselves;

c) some of the learners who have achieved mastery in handling the equipment could demonstrate their ability to the others and thereby accept responsibility for their own learning; and

d) students can be motivated to produce some simple teaching aids and materials by themselves.

3. Use of educational technology materials can facilitate the understanding and respect for others in at least three ways:

a) by providing resources for small group work;

b) by fostering team work; and

c) by providing information designed to reduce prejudice and to increase mutual understanding and respect.

4. Educational technology materials can be utilized as a basis for group discussion. Various techniques can be used to explore the behaviour of people in groups and to encourage positive group-oriented behaviour and reduce blocking behaviour.

5. The class can be encouraged to work as a team in:

a) management aspects of the use of the educational technology equipment;

b) sharing resources; and

c) working co-operatively when using equipment to develop and produce items of mutual interest and benefit.

6. Games and other forms of educational technology resources can be used to present information designed to increase understanding of individual differences across a wide area of factors.

7. Use of educational technology materials can help to develop a democratic outlook in several ways including the following:

a) They can alter the focus away from viewing the teacher as an authoritarian figure to viewing him or her as a learning facilitator. Since most of the information comes from the educational technology materials, the teacher is freed to provide guidance and advice. Democratic attitudes, therefore, emerge.

b) The use of educational technology materials by small groups of learners can provide the opportunity for pupils to try out various social roles including democratic leadership and various forms of decision making.

c) Since educational technology resources require a special kind of classroom management, an opportunity is provided to elect a management team based on democratic lines and to explore various patterns of management in the classroom.

Chapter Two

EDUCATIONAL TECHNOLOGY MATERIALS USED IN TEACHER TRAINING AND IN SCHOOLS

The various country experiences presented during the APEID Regional Training Workshop on the Use of Educational Technology by Teachers, revealed that the quantitative expansion and qualitative improvement of educational systems in the participating countries have resulted in a rapid increase in material and equipment requirements. In some cases, however, the materials and equipment currently in use in these countries are not adapted to their needs or to their socio-economic environment. In some cases, materials are imported from industrialized countries and are generally designed along the lines of foreign models.

Stimulated by the desire for democratization of education (within the framework of lifelong education) and by the efforts undertaken to adapt educational programmes to the needs of development, the demand for educational equipment and materials has far exceeded the present production capacities of many developing countries. These countries already have difficulties of procurement and also face excessive increases in costs and rapid growth of their imports. It was pointed out that the adoption of educational policies inspired by the concept of "basic needs" could aggravate the economic, technical and cultural dependence of the least developed countries as far as educational equipment and materials are concerned, including commonly used products such as paper and exercise books, pencils and pens, insofar as these countries will not be able to develop their own production potential and establish stronger horizontal co-operation between themselves.

The deliberations during the Workshop revealed also that some of the participating countries have set up production units within the school administration system itself. It was further revealed that even when the output of such units suffices to cover the needs of the educational sector, they are hopelessly inadequate in terms of the

massive reproduction and distribution of educational technology materials throughout the countries, specifically in rural and remote areas. The efforts of countries like India, Indonesia, Malaysia and others to decentralize the production and distribution of teaching aids at provincial and district levels have proved successful in solving the problem of inadequate supply of teachers in those deprived areas, by providing adequate equipment and a variety of aids which are easily adaptable to local environment and existing facilities.

The types of materials produced in various countries include the following media: (An asterisk (*) indicates that this category is expensive and time consuming to produce or reproduce and is usually given low priority.)

1. **Non-projected visuals**

Graphics – sets of illustrations other than pictures of reality i.e. maps, graphs, cartoons; presented on cards or boards.

Board display – elements for building up concepts on felt or magnetic boards.

Charts and posters forming a set.

Study prints – set of photographs or printed illustrations of reality, mounted on cards.

2. **Projected visuals**

a) *Still pictures*

Set of 35mm slides in colour.

Film strips.

Overhead projector materials (both single transparencies and overlay transparencies).

b) *Moving pictures without sound*

8mm and super 8mm movie.

* 16mm movie.

3. **Audio programmes**

   Sound on cassette tape.

   Script for simulated or actual radio broadcasts.

   Language laboratory programmes.

4. **Pictures with sound**

   Slide/tape programmes.

   Film Strip/tape programmes.

   * Sound movies.

   Scripts for TV broadcasts.

   Video taped programmes.

5. **Printed Materials**

   Newspaper files – thematic selections.

   Correspondence files – for simulation activity.

   Pamphlets and booklets forming a structured set.

   Printed notes.

6. **Objects** (three-dimensional)

   Set of real objects (e.g. minerals, biological speciments, carpentry joints).

7. **Multi-media systems.** (i.e. kits involving combinations of the individual media listed under headings 1-6).

   Multi-media kit for individual or group use.

   Resources for a museum display.

   Simulation game for individuals or groups.

   Resources for a community project or visit.

The demonstration of educational technology materials brought by the participants to the Workshop indicated the increased tendency to use many of the teaching aids combined together as multi-media materials.

This factor necessiated specifying certain criteria for selection and/or production of multi-media materials. The following characteristics of effective multi-media materials could serve as a criteria for their selection and/or production.

1. The resource must meet a clearly identified need.

2. Educational objectives must be stated clearly and in behavioural terms.

3. A student study guide must be included which gives instructions, guides the student in the use of the resource and provides opportunities to record observations, answer questions and make other responses.

4. The media chosen must be appropriate for the messages they convey. The following types of questions should be considered:

a) Do the colour slides extend the senses, provide data for inquiry or motivate and enhance student interest?

b) Do the overhead transparencies provide for techniques such as progressive revelation, animation and overlay?

c) Do the movies and videos illustrate complex techniques, establish sequential movement or take pupils on imaginative journeys?

d) Do the sound tapes provide essential auditory stimuli?

5. There should be a variety of media. Learning will be enhanced if the various senses are engaged in receiving stimuli. Both print and non-print materials should be included. Non-print materials, where possible, should include resources to be seen, heard, touched and manipulated.

6. The use of two or more components of the unit together should produce a summative effect greater than if these components were used alone. Conversely, care should be taken to ensure that one

medium does not interfere with another – for example, loud, obtrusive or inappropriate music in a slide-tape programme can obscure the message.

7. Ideally, however, and in spite of point 6, at least some of the components of a multi-media kit should be capable of standing alone. For example, if a kit contains a slide set, a video programme and a set of newspaper clippings, all three resources should be useful to achieve a range of objectives apart from those achieved through use of the completed kit.

8. Equipment required to receive all aspects of the message must be readily available. There is no point in producing kits containing video programmes, for example, unless appropriate video tape recorders and monitors are available.

9. All components of the multi-media kit should encourage users to make responses and to be active in learning.

10. The kit should encourage learners to accept responsibility for their own learning. That is, the material should be presented in a format which enables the learner to be in control. Users should be able to decide on the rate of learning; and perhaps to determine the sequence of learning and the division of each unit into sub-topics or sub-units appropriate to needs.

11. The kit should be designed and presented in such a way that it ensures effective learning.

Since the production and the utilization of multi-media materials appear to be relatively new in many of the countries in the region, it was decided to provide brief guidelines with suggested sequence (steps) in the development of such materials.

Suggested steps in development of multi-media materials.

1. Determine need to be served by the material.

2. Write a statement of purpose. That is, say for whom the material is intended and where it fits in a specific curriculum or training programme.

3. List up to ten general educational objectives to be achieved through use of the material.

4. Select the content and arrange it in the form of a series of headings and subheadings in an appropriate teaching order.

5. Select the media to be used and decide how the "content" is to be partitioned between the media. Questions to consider in this regard include:

a) Should the content be partitioned between the media in a strictly linear fashion e.g. first concepts or skills presented through printed resources followed by slide/tape set followed by a video programme?

b) Should some or all the various media be complementary rather than the main inputs for certain of the concepts

e.g. concept or skill 1 – presented by audio tape,
concept or skill 2 – by a printed booklet illustrated by helpful but not essential, colour slides, and so on?

c) Are all media appropriate for the messages they convey?

6. Write or select the text for all printed components which are to stand alone as printed materials.

7. Write a script outline for all audio-visual components. In the case of visuals (with or without audio accompaniment) this should be in the form of a story board, i.e. cards arranged in sequence showing main ideas, production suggestions, sketches of art work or other visuals, and headings for any commentary.

Note: See Also step 12 at this stage.

8. Produce all visual components.

9. Record all audio components from the script outline (not from a formally written out script) maintaining an informal conversational tone and style.

10. Transcribe and edit the audio-recording to produce a final audio-script. Be careful in the editing to maintain the informal conversational style present in the original recording.

11. Combine any audio commentary with those previously produced visual components requiring them.

Multi-media teaching materials

12. Draft the student's study guide with instructions, questions, response spaces and supplementary and complementary printed materials side by side with production steps 7 to 11.

13. Write the teachers' guide.

14. Have the prototype kit criticized and evaluated by competent colleagues and make any necessary amendments.

15. Try out the prototype kit with at least five representative users and seek their evaluative appraisal, in particular identifying areas of conceptual difficulty and watching for problems in pacing and maintenance of interest.

16. Amend the prototype in light of evidence from step 15.

17. Produce the multi-media kit in final form.

All participants of the APEID Regional Training Workshop were requested in advance to produce or select various educational technology materials, including multi-media materials and to bring them for demonstration during the Workshop. A total of 19 single and/or multi media materials were demonstrated by the participants.

As a training exercise, the majority of these materials were evaluated during the Workshop by *all* participants and observers, using a preliminary prepared *evaluation check list*.

The following pages provide brief description of the various educational technology materials, demonstrated during the Workshop and summary of their evaluation.

Those demonstrated educational technology materials, which were evaluated by the participants of the workshop, are marked by (E).

BANGLADESH:

1. **Media: Video film (E)**

This video film of 15 minutes duration illustrates the life of the tribe of Bander ban, a tribal area of Bangladesh. The video film has been used as a teaching/learning aid for social studies at secondary

level and can be used in the schools through VTR or the mobile van of Bangladesh Institute of Distance Education (BIDE). The approximate cost of reproduction of the video film is US$10.00.

2. Media: Low-cost equipment (E)

This is one of the many low-cost teaching aids developed by Bangladesh Educational Equipment Board (BEEB), as an outcome of the National Workshop on production of low-cost equipment held in 1981 in Dhaka in co-operation with UNESCO ROEAP Bangkok. This particular equipment is used to demonstrate and prove the theory of linear expansion of metal due to heat. The materials required are a rectangular piece of timber (4cm x 5cm x 45cm), a copper rod 3mm in diameter and 45cm long and a strip of tin sheet, which is bent to cover a groove on the wooden block. The groove, covered by tin, is fitted with thick cotton string, soaked in spirit alcohol or kerosene. It is inflamed with a match-stick. The copper rod is heated by the flame and expanded. A cylindrical rod, which is pressed against the copper rod so as to rotate when the copper rod expands, is indicating through a pointer against a circular scale how much the copper rod has expanded.

BEEB produces this teaching aid for distribution and its cost is approximately US$1.25.

3. Media: A set of five wall charts (E)

These charts are used as teaching/learning aids in general science at the primary and secondary levels. They are related to:

a) different constituents and balanced diet;

b) electrolysis;

c) industrial production of ammonia;

d) typical cell; and

e) digestive system of a toad.

The charts are printed on cheap but very strong paper and can easily be used in the classroom either by hanging or pasting them on

the board. These charts have been produced by BEEB and the approximate cost is $0.25 per piece.

INDONESIA:

1. **Media: Set of slides and audio tape (E)**

This multi-media teaching aid describes the purpose of village community development and the conditions required for its implementation. These slides emphasize the brotherhood, solidarity and group co-operative activities in rice-field cultivation, village road repair and cottage industry. The materials used for production of the media are colour slides of graphics and from real life objects, as well as an audio cassette.

The programme is shown to students of open junior high schools by the teacher and followed by discussion. The media is produced by the Centre for Educational Communication Technology and the approximate cost is US$25.00.

2. **Media: Game with playing cards (E)**

The media consists of five cards and an instruction manual. It is used for adult education on family planning through the system of non-formal education. The cards depict the images of mother, father, boy and girl, one each of 4 mothers, 4 fathers, 4 sons and 5 daughters. The person who loses the game initiates a discussion on the importance of family planning and the other players take part in the discussion. The playing cards have been produced by the implementation unit of the Centre for Educational Communication Technology in Surabaya (East Java) and their approximate cost is US$2.00.

JAPAN:

1. **Media: Video film (E)**

This video film depicts the daily life of student teachers. This is used in teacher's training colleges for the orientation course of the trainees by sharing the experiences of student-teachers in teaching practice.

The film has been produced by the Broadcasting Education Development Centre, Japan.

2. **Media: Video film, Overhead Projector Transparencies, Micro-computer (NEC 9801) (E)**

This multi-media educational technology kit was developed for instructional analysis by using a micro-computer for the in-service training of teachers. The programmes for this instructional analysis were written mostly by using BASIC language. The process of development of this software is to figure out the objectives of instructional analysis, to write a flow-chart for computer processing, to write a trial programme based on this flow-chart, to execute the trial programme, to effect debugging and to make final modification.

The coded materials of the classroom instruction are analysed and discussed later for improving classroom instruction. The media was developed by Mr. H. Tachiri and Mr. Y. Murakami.

MALAYSIA:

1. **Media: Slides, audio cassette, charts and teacher's guide (E)**

This multi-media kit is used in the subject methodology in pre-service and in-service teacher training. It deals with the topic "Flannelgraph" which is used as a teaching aid in language teaching. The kit consists of 49 slides, 1 audio tape, 12 charts and 1 teacher's handbook. The slides are made from figures drawn on charts. The handbook explains the use of various examples and the audio tape provides the necessary information. The media can be presented by using a slide projector and audio cassette recorder.

The charts may be displayed for better understanding. This has been produced by the AVA Section of the Educational Media Service Division, Ministry of Education. Its approximate cost is US$25.00.

2. **Media: Slides, audio tape, pictures, specimens and teachers' guide (E)**

This multi-media kit is used for teaching geography in primary schools, illustrating the topic "Tea industry in Cameron Highlands".

The media gives a general idea of tea plantation in that area. It consists of 20 slides, one audio cassette, 10 pictures, 10 specimens and one teacher's guide. The specimens of different varieties of tea produced in that area are brought to learners in other areas who can not otherwise see those specimens.

The media has been produced by the AVA Section of the Educational Media Service Division and its approximate cost is US$30.00

NEW ZEALAND:

1. Media: Audio tape, slides and booklets. (E)

The media is developed as an aid to "Early Reading" at junior primary school level. It is prepared for teachers training.

The media illustrates enjoyment of verse and song, re-reading of a favourite story and learning from the text, and language learning. The media may be used for self-learning by the individual teachers and has been produced by the Department of Education, New Zealand Educational Institute.

2. Media: Video tapes and booklets (E)

This multi-media kit has been developed for the subject "Reading" at middle and senior primary school level, the topic is "Later Reading In-service Course" (LARIC).

The media attempts to nighlight teachers' enthusiasm and understanding and offers ideas for practial use in the classroom. The media is presented to small groups of teachers under the guidance of tutors. It has been produced by the Department of Education, New Zealand Educational Institute.

3. Media: Audio tape and slides

This media has been produced for Teachers' Planning and Preparation. The media places emphasis on appropriate classroom organization and strategies.

It is presented at teacher staff meetings.

The media has been produced by the Department of Education, New Zealand Educational Institute.

PHILIPPINES:

1. Media: Transparencies

This media, consisting of four transparencies has been developed for the use of the personalized system of instruction (PSI) in teaching statistical methods in education at graduate level in teacher education. The media analyses the various topics on PSI such as:

i) preparation of the faculty;

ii) typical classroom arrangement;

iii) significance of the PSI; and

iv) types of instructional media needed in PSI classes.

Only transparencies and felt-tip pens are required for producing this media. The approximate cost is US$0.25.

REPUBLIC OF KOREA: (E)

1. Media: Motion picture projection

The media is related to the topic "Motion Picture Projection" in the course of educational technology and explains in details the theory and practice of the operation of a 16mm movie projector. This is prepared for the student-teachers and for teachers. The media consists of a set of self-paced printed programmed materials, which are distributed to the learners who go through the modules. The media is developed by Dr. Park Chung Nam of the National University, Taejon, and its cost is approximately US$1.00.

SRI LANKA

1. Media: Video film and teachers' guide (E)

This programme is produced for teaching botany at senior secondary school level and the topic is the "Study of Micro-organisms".

Multi-media teaching materials

The media consists of video film and teacher's guide. It is very useful teaching aid which illustrates the difficult topic of cultivating micro-organisms.

After the video film is shown, the students are requested to prepare a stained smear of bacteria and the steps to be followed in this exercise are clearly stated in the teachers' guide. The media is developed jointly by the ETV Units of Curriculum Development Centre of the Ministry of Education and the Sri Lanka National Television centre.

2. Media: Video film and illustrative printed materials

This programme has been developed for teaching Botany at senior secondary level for the topic, "Types of vegetation in the bio-climatic zones of Sri Lanka". This is one of the three programmes on the same topic. The media explains the characteristic features of forestry and its relationship to climate. Through viewing the film, the students form an idea of the different types of trees and animals in the deep forest, thin forest, grassland and the different vegetation in different bioclimatic zones of the country such as dry and arid. The media is designed for teacher use. It is produced jointly by the ETV unit of the Curriculum Development Centre of the Ministry of Education and the ETV Unit of the National Television Centre.

THAILAND:

1. Media: Transparencies, worksheets and study sheets (E)

This multi-media kit deals with the topic "Soldering" in the subject "Basic Electricity" at junior secondary level. The components of the kit are: a set of printed self-learning instructions, a soldering kit and five overhead projector transparencies. These transparencies have been prepared, keeping in mind the content objectives and are based on the theory and proper practice of soldering. It is prepered for Saensuk High Schools. Its cost is approximately US$10.00.

2. Media: Video film.

This media illustrates the usefulness of video films. The video film consists of three parts, illustrating three examples. First it deals with general science at secondary school level and illustrates the topic of Solar Energy. The media gives some background information on the various types of energy and explains the origin and use of solar energy, illustrating solar cells and their usefulness, as well as the use of solar heaters.*

In the second part, the film shows the fish fertilization which is very difficult to observe and study since the observation of the real process requires a long time and the availability of aquarium and fish. The last part of the film relates to Reduced Instructional Time (RIT). This video film is mainly used by primary schools in remote areas where there is one teacher for the whole school. The objectives of this part of the video film are to develop instructional materials as a means of increasing the efficiency of the teacher and to reduce the time of teacher-pupil contact.

The next table presents the summarised result of the evaluation of all above media materials marked "(E)" by the participants of the Workshop.

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* Video film produced by ESSO Corporation.

Group Evaluation of the Samplar Educational Materials demonstrated during the Regional Workshop (degree of usefulness assessed in percentages)

Criterion	*Type and number of media demonstrated*							
Note: (NR means: "not relevant)	*Video tapes (4 programmes)*	*Slides & Tapes (4 programmes)*	*Transparencies (one set)*	*Low Cost Models (one set)*	*Charts (one set)*	*Cards for playing educational game*	*Instructional modules*	*Video tape on Micro-computers (One Programme)*
	%	%	%	%	%	%	%	%
1. The materials meet a clearly defined need	86	85	85	95	90	80	90	90
2. Educational objectives are met	78	85	85	100	90	75	95	85
3. An effective student guide is included which gives clear instructions for the use of the materials (if needed)	NR	NR	90	65	NR	NR	95	100
4. The media are appropriate for the message they convey	91	85	75	90	90	75	90	90
5. There is a variety of media	58	75	70	65	NR	75	65	75
6. The teaching aid is designed for particular topic of the curriculum	91	87	100	95	90	NR	90	95
7. The teaching aid is flexible for multiple use for demonstration in various topics/ subjects	67	62	35	60	65	50	55	80
8. The educational technology material is designed to help learners overcome specific difficulties	93	71	65	75	80	80	85	80
9. The material is easy to make and cost effective	58	70	80	100	95	90	65	45
10. The material is durable, not bulky and easy to store and maintain	92	83	80	85	80	85	90	75
11. The material is easily adaptable for different users/environment	74	73	70	70	70	80	75	70
12. Degree of culture free level	64	65	85	95	85	75	75	70
13. Over-all usefulness	73	73	75	85	95	80	75	80

Chapter Three

MULTI-MEDIA KITS DESIGNED TO SOLVE SPECIFIC PROBLEMS OF TEACHING IN VARIOUS SITUATIONS

This chapter is devoted to multi-media kits, specially designed to solve specific problems of teaching in various teaching/learning situations. As it was pointed out in the previous chapter, a multi-media kit consists of two or more educational media, each developed as a separate component but designed to be used in co-ordination in the learning of a particular topic. Usually a multi-media kit consists of (i) a printed study guide for pupils; (ii) one or more predominantly visual components; (iii) an audio component and (iv) a teachers' guide. Some kits add other elements such as real objects: models; printed programmed materials; textbooks; and other devices like movies, video taped materials and computer programmes.

The general educational advantages of multi-media kits and other audio-visual media include the following:

a) they cater for multi-sensory learning;

b) they are relatively easy for students and teachers to use in a variety of classroom situations;

c) they can be used by individuals, by small groups and by large classes; and

d) they cater for differences in styles of learning.

Because multi-media kits and most other audio-visual resources are flexible in design and operation, they can be used to meet a wide range of educational objectives.

With a view to the increasingly recognized importance of this media to solve some specific problems of education in Asia and the Pacific, three multi-media kits were produced, prior to the workshop: (a) by the National Centre for Educational Research and

Training – India; (b) by the New Zealand Department of Education; and (c) by the Korean Educational Development Institute. The three multi-media kits, demonstrated during the Regional Workshop on Use of Educational Technology by Teachers in KEDI, were specially designed to solve specific problems in teaching encountered in one-teacher schools, in minority groups or multi-cultural classes and in large classes.

The intention to focus on problems of one-teacher schools, minority and/or multi-cultural classes and large classes clearly reflects regional needs. Multi-media kits and other aspects of educational technology can help in the resolution of such problems in several ways, suggested as follows:

Generally for all three situations

The one-teacher school, the school with large classes and the school dealing with minority groups or multi-cultural situations tend to share the following problems:

1. The need to develop flexible techniques of classroom management. The class needs to be continuously changing from large group to small group and to individualized learning situations to meet the requirements of widely varying subgroups. Multi-media resources are ideal for this since they have the flexibility for use in all these situations. Several different learning "stations" can be set up simultaneously.

2. The effective use of time and time management aspects are critical in all three settings. Once again multi-media resources can help in this regard since they allow the rapid changeover from one learning sequence to another and allow different activities to proceed simultaneously.

3. In all three situations great stress must be made on the need of the learner to accept responsibility for his or her own learning and to reduce dependency on "from the front" teaching. Multi-media facilities, as already noted, encourage independence since:

a) they provide the input that would otherwise need to be provided by the teacher;

b) they allow pupils to work at their own pace and to treat the lesson at the depth consistent with agreed objectives and

c) there are problems in the management of resources and audio-visuals which encourage pupils to accept responsibility for aspects of resource management in the classroom.

Specifically in three selected situations:

One-teacher schools. Multi-media kits and other audio-visual materials can facilitate teaching and learning in one-teacher schools in the following ways:

1. The main need in one-teacher schools is to cater for seven or more parallel learning streams working independently of "from the front" teaching. As outlined above, multi-media kits provide for this. It is important, however, that these kits provide graded experiences – the "SRA" reading laboratory approach provides a good model since graded reading cards can be studied at various levels and students can work through the material at their own pace.

2. The second key problem in the one-teacher situation is time management. The teacher must be especially sensitive to detect when each learning group is ready to change to a new lesson and should have the next set of learning materials immediately to hand. A range of multi-media kits helps in this regard.

3. A third problem is that in one-teacher classrooms some pupils require close personal one-to-one assistance and guidance, which is difficult to provide with conventional resources. Self instructional multi-media kits used by the majority of the class, free the teacher to give individual attention to those who require it.

4. A fourth problem in the one-teacher situation is that there is a danger that each group may follow a very similar learning sequence from topic to topic or lesson to lesson – say reading a textbook and/or completing written assignments. While a proportion of the learning would need to follow this pattern the use of multi-media kits allows variety to be introduced into the learning

sequence. Variety, of course, increases interest and interest enhances learning.

Multi-cultural and minority group classes

The existence of widely ranging differences between members of a class in terms of language and cultural background pose a special problem for classroom management. Multi-media and other technological materials can help solve these problems by:

1. The provision of remedial kits in both language instruction and in substantive areas of the curriculum where pupils can work at their own pace to close gaps in skills and knowledge;

2. Encouraging independent and group learning so as to free the teacher for intensive work for those pupils requiring it; and

3. Providing stimulus materials for lessons concerned with the development of appropriate attitudinal objectives.

Large classes

Multi-media kits and other audio-visual materials can help in this situation by:

1. Clarifying presentations "from the front" and ensuring that all members of the class make adequate responses. The use of media such as overhead projector transparencies; slides; movies; video programmes and the like makes certain that all pupils can see and hear presentations. Appropriate response booklets or other resources such as study cards or activity kits can then be used to follow-up the presentation with meaningful activity; and

2. Allowing the class to be broken up into several sub-groups each sub-group working through one or more multi-media kits.

The following pages provide some description of these multi-media kits, as well as a summary of their evaluation.

I. Design and use of a multi-media kit for one teacher schools in Indian situations

A large chunk of India's under-developed habitations are in the rural, tribal, hilly, coastal belts with poor accessibility and thin population size. One-teacher schools are the result of thin population patterns.

In most of the one-teacher schools the children are first generation learners. Most of the teachers practise teaching as a verbal communication. The children are led to memorize textual portions, which are intended to develop skills and attitudes.

One way to bring social change to these deprived areas is through the establishment of one teacher schools to reveal to the pupils what is happening outside of their immediate environment; what is the potential of their own local resources; what is the culture of their own land and how to optimally use and conserve their environment. The application of multi-media kit is of vital importance in this respect. Apart from helping the teacher to teach several classes, the multi-media kit can help to reduce pupils' dependence on direct teaching, generate self-discovery methods and develop self-reliance. In short, the use of multi-media kit makes learning more productive, individualised, more immediate and more powerful.

The multi-media kit for one-teacher schools has been designed with a view to generate a learning climate in which the children can learn by doing; participate in the teaching-learning process in the class; and can extend their learning to places, events, institutions, phenomena, principles and processes beyond the range of their own environment.

This multi-media kit has the following advantages:

1. The materials are re-usable, and thereby reduce the cost of the stationery, paper and other materials.

2. The media used in the kit is within the range of experience of the teacher and if some new media inputs are introduced, these remain easy to handle.

3. Most of the hardware does not require the use of electricity. Where additional software is added that requires electricity, some alternatives are also suggested. The multi-media kit for one-teacher schools includes the following components:

1. Media materials

- Transparencies for the training of teachers in solving the problems of one-teacher schools. (For in-service teachers, paper prints of these transparencies will be included in the kit);
- Flannelgraph board-cum-small blackboard;
- Multipurpose plastic slates;
- Audio tapes;
- Slide viewers;
- Puppets (these are to be locally prepared by the teachers);
- Picture cards;
- Picture cut-outs/cards for the flannelgraph;
- Slides of wild life, birds, human physiology, historical monuments;
- Work-sheets for practice in literacy and numeracy skills;
- Political maps of India, the states of India, Union Teritories;
- Compass;
- Magnifying glass;
- Scissors;
- Models illustrating the movement of the moon around the earth;
- Wall charts for various subjects, like mathematics;
- Sundial;
- Samples of rocks, minerals and soil not available in the local environment; and
- Simple science equipment which is left to be procured locally.

- Coloured pens, crayons, paper charts, etc. for teacher's, and pupils use in the class.

2. Guide book on Teaching in One-Teacher Schools.

3. Samples of teaching units for the teacher to comprehened the Strategies of Teaching in One-Teacher Schools

The materials are placed in plastic boxes of sizes 25cm x 30cm x 8cm and 25cm x 20cm x 8cm. The flannelgraph, the charts, the maps etc. have size 25cm x 40cm and are placed at the top in the Kit. A small place measuring 10cm x 50cm is left vacant for multi-purpose use by the teacher in the multi-media kit container.

II. Multi-media kit "Shared reading in multicultural classes"

This is an education kit for teachers in New Zealand.

CONTENT of the multi-media kit:

1. Teacher's booklet entitled "Guidelines for Shared Reading";

2. Video tape;

3. Enlarged book (teacher made);

4. Enlarged book (commercially made) entitled "I'm the King of the Mountain";

5. Suggestions for making enlarged books;

6. Pupil's book with audio tape;

7. One overhead projector transparency; and

8. Selected reading: the publication "Language for Learning: Education in the Multi-cultural School" by Janet Holmes, New Zealand Department of Education, 1982.

Suggestions for using the kit

The kit is designed for use by teachers of junior primary school children. The shared reading approach is particularly appropriate

for children in multi-cultural classes, but it can also be used to good effect with any class.

Step 1 – Read the teachers' booklet entitled "Shared Reading in Multicultural Classes".

Step 2 – Watch the video tape, relating what you see to the material contained in the teachers' booklet.

Step 3 – Select one of the enlarged books or overhead transparencies, provided in the kit, and plan a shared reading lesson to take with your class. The teachers' booklet will help you to structure the lesson.

Step 4 – Replay the video tape and think about what techniques you will use to involve the children in your lesson.

Step 5 – Make an enlarged book to use with your class. The booklet "Suggestions for Making Enlarged Books", will be of assistance to you.

Shared reading in multicultural classes

Introduction. Most teachers are used to meeting the needs of children who come to school speaking the language of instruction as their mother tongue. But some pupils speak a different language at home. Their cultural and social background is different from that of the other children in their classroom and they have different experiences. The usual teaching methods cannot be applied effectively for these children.

This multi-media kit is designed to introduce teachers and pupils to Shared reading. Shared reading is an approach developed to provide a high level of achievement by all children when they begin to learn to read. Experience has shown that shared reading is effective in both multicultural and monocultural classrooms.

What is shared reading? Shared reading is a teacher reading to and together with children, while discussing ideas, and reading strategies at the same time.

Why used shared reading? Shared reading is used because:

– it makes reading enjoyable;

- it builds the confidence to participate;
- it helps children to acquire the strategies necessary for independent reading;
- it enables children to read material that might otherwise be beyond them;
- it helps children to become more familiar with a language when they speak it aloud; and
- unison speaking offers the support of the group.

Shared reading assists in the development of self-correcting, self-teaching, and self-evaluation. Reading in unison helps the children to perceive their own mistakes. They learn more quickly to know when they are right and when they are wrong, and to correct themselves. Teachers should encourage self-correction by making it a major objective for every lesson.

Before the lesson. Decide on the purpose for reading. Will it be to:

- enjoy a new story, song or poem? (make sure it has intrinsic interest);
- teach a particular strategy? (then do not use a text with too many difficult challenges);
- re-read a favourite text; (let them tell you which one this is);
- gather information? (they will need to be able to scan the material easily);
- prepare for other activities? (make sure the texts are relevant to what will follow);
- or several of these? (not too many at any one time).

Selecting the material. The book, song, poem or rhyme must offer special rewards in language and be of such quality and interest that children will want to re-read it many times.

The print must be large enough for all children in the class or group to see clearly. See the booklet entitled "Suggestions for Making Enlarged Books".

The first reading

Introductory discussion. The introductory discussion should stir the children's imaginations and relate their own experience to the text.

During the reading. Concentrate on enjoying the text and read it through with as few stops as possible.

Encourage the children to use their background knowledge to make predictions. Stop your reading to explain things only if necessary.

Be positive in accepting and encouraging children's responses. Say:

"Good"

"Yes"

"Could be. . ."

"Probably!"

Providing a speech model. The teacher must provide a clear speech model in the first readings so that the children can gain confidence in their use of new language by practising it in unison with the other children. Research has shown that children for whom the language of instruction is their second language benefit from this kind of choral reading, which avoids comparison and criticism during the critical stages towards mastery.

The children need to see the text and illustrations so that they can join in with the re-reading. Working together encourages the tentative ones to contribute. Encourage children to cope with difficult words by:

- reading on to the end of the sentence or section;
- re-reading up to the difficulty, and using meaning and knowledge of grammatical structure to make an attempt;

– listening to the teacher tactfully repeating the pupil's reading. (This gives the children a chance to recognise incongruities, but should only be done if it does not cause embarrassment).

If the difficulty is not overcome quickly – tell them!

Additional activities

Writing. Teachers and children may write a new version in the same style, changing characters, events, or vocabulary but following the original language patterns and themes.

Dramatizing. Presenting dramatized segments of a book. Role-playing or miming characters for others to identify. Performing an impromptu play.

Listening. The listening post. Listening to group or class presentations.

Review

Did the children enjoy the material?

Did they understand it?

Did they readily identify with the characters?

Were they able to predict: words? phrases? events? reactions? outcomes?

Were they confident in attacking new words?

Were they able to confirm their attempts to new words?

What strategies did they use?

What strategies still have to be learned?

Long term

Does each child enjoy reading?

Were attempts to solve problems met?

Do they turn naturally and eagerly to books?

III. Three Multi-media Kits Prepared by KEDI for Teaching in large classes

Multi-Media Kit I

1. Title : Making a lampshade.

2. Target : The kit is developed for practical arts and crafts activities of students attending large classes at elementary school level.

3. Aims : The kit is designed to help students to make a lampshade by themselves.

   Its aims are:

   a) To illustrate the process of making a lampshade;

   b) To help students to make a lampshade, following a Sequential order of operations; and

   c) To make the construction of a lampshade a pleasurable exercise.

4. Components:

Kit I comprises Explanatory Notes, a Students' workbook, a Teachers' Guide and a Video cassette tape.

a) *Explanatory Notes*

The Explanatory Notes, a printed material, contain some general information about the kit itself, such as its aims, contents and use.

b) *Students' workbook*

The Students' workbook is a printed material for students' use. The work is divided into three major activities:

Activity 1. Drawing a pictorial view of the lampshade which the student wants to make.

Activity 2. Drawing the orthographic views of the lampshade.

Activity 3. Making the lampshade.

c) *Teachers' Guide*

The Teachers' Guide is also a printed material to show the teacher how to conduct the instruction. It lists the objectives, the materials, and the sequence of operations in the process of producing a lampshade.

d) *Video cassette tape*

The video cassette tape is produced to show the process of making a lampshade to students in a large class.

The video cassette runs for about half an hour. The following pages provide detailed description of these four components of the kit.

a) **Explanatory Notes**

i) Title : Making a Lampshade.

ii) Target : The kit is prepared for students and teachers at elementary school level.

iii) Aims : The kit is a typical example which uses educational technology techniques of presentation in large classes.

Its specific aims are:

- To facilitate the production of lampshade by the students, as part of their work in practical arts;
- To help the teachers' presentation;
- To help students to make the lampshade; and
- To bring satisfaction to the students while making the lampshade by themselves.

iv) Components:

The kit comprises a Students' workbook, a Teachers' Guide and a Video cassette tape.

Multi-media teaching materials

a) *Students' Workbook*

The Students' Workbook is a printed material for students' use. It is divided into three parts, each devoted to a specific activity:

Activity 1. Pictorial drawing of the shape of the lampshade which the student will make.

Activity 2. Drawing the orthographic views of the lamsshade.

Activity 3. Making of the lampshade.

b) *Teachers' Guide*

The Teachers' Guide is also a printed material guiding the teacher how to conduct the students work. It describes the objectives, the materials used and gives instructions for work.

c) *Video cassette tape*

The video programme illustrates the process of making a lampshade. It is used for presentation in large classes. This video programme is one of the series of "Practical Arts in Elementary school," produced by KEDI.

The video programme runs for about half an hour.

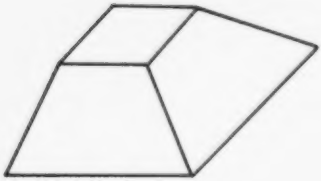
b) **Students' Workbook**

i) Title : Making a Lampshade

ii) Activities:

- Activity (1) : Drawing a pictorial view of a lampshade you would like to make.
- Determine the size of the lampshade considering the size of your own study room and desk.
- Chose the shape of lampshade which is beautiful, safe and convenient for use, considering if it is easy for making.

– Activity (2) : Draw three orthographic views:

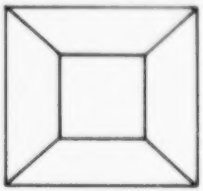


pictorial view

a front view

a side view

a top view



three orthographic views

– Activity (3) : Making the lampshade.

Materials needed:

Metal Wire:	(1.40mm in diameter)	:	2280mm long piece
	(1.0mm in diameter)	:	660mm long piece
	(thin metal wire for connecting the thick metal wire pieces)	:	400mm long
– Rice paper	(white)	:	860mm x 210mm
	(coloured)	:	860mm x 210mm

– Glue, adhesive tape

iii) Instruments needed:

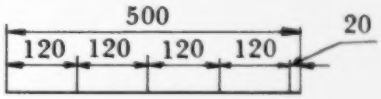
– Ruler, pencil, sign pen, a pair of pliers, hammer, scissors, work bench, or wooden block to work on.

iv) Construction of the lampshade:

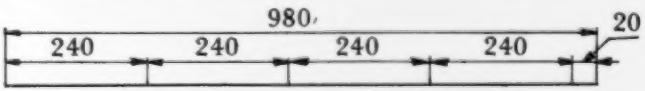
a) *Frame Making*

– Measure and mark the points determining the lenght of each side of the wire frames as shown in the drawing:

– (Upper frame)



– (lower frame)



– Flatten 20mm of the end of the wire for each frame with a hammer on to a metal block.

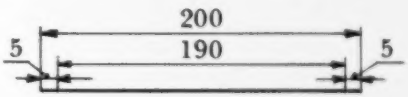
– Bend the upper and the lower frames at a right angle on each of the marked points to produce the rectanqular shape of each frame.

– Wind the overlaping 20mm long flattened ends using a very thin wire.

b) *Column making*

– Cut four 20mm long preces of wire.

– Mark points 5mm from both ends.

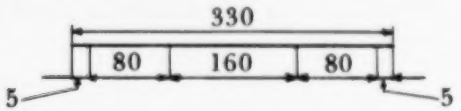


– Bend the 5mm long flattened parts to shape them as hooks.

c) *Connecting the upper frame with the lower frame through the columns using the thin metal wire.*

d) *making clamps for the electric bulb*

– Measure and mark the points on a 330mm long piece of wire, as shown in the drawing



– Bend the two 5mm long end parts like hooks.

– Bend the two 80 mm long parts as shown on the video film.

– Bend the middle 160mm long parts in a circle.

– Make two small rings.

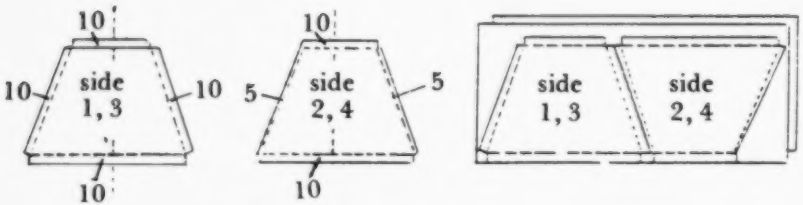
– Bind the two clamps with the rings as shown in the video film.

e) *Securing the clamps to the upper frame*

– Follow the procedure shown on the video film.

f) *Pasting the white rice paper*

– Draw 4 patterns and cut them as shown in the video film, leaving 10mm and 5mm extra material as shown in the drawing.



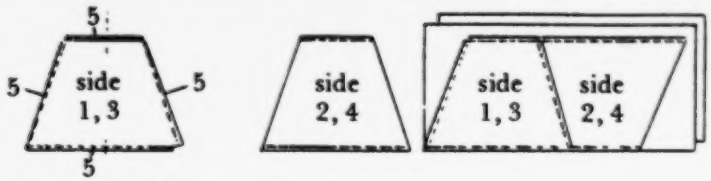
– Paste sides 1 and 3

– Paste sides 2 and 4

g) *Decorating the white rice paper*

h) *Pasting the colored rice paper*

– draw patterns and cut them as shown in the video film



– Paste sides 1 and 3

– Paste sides 2 and 4

i) *Spraying water onto the rice paper*

When using the lampshade, you should be careful in handling it, because if the electric bulb touches the paper it may cause fire.

c) **Teachers' Guide**

i) Title : Making a lampshade

Making a lampshade and using it would be very exciting and rewarding experiences to students.

ii) Materials

(1) Lampshade

(2) Lampstand

(3) Video film : illustrating the process of making a lampshade.

(4) Materials and instruments needed for making a lampshade:

(a) Metal Wire (1.4mm in diameter) : 2280mm long piece
(1.0mm in diameter) : 660mm long piece
thin metal wire (for connecting the thick wire pieces) : 400mm long

(b) Rice paper (white) : 860mm x 210mm
(coloured) : 860mm x 210mm

(c) Glue, adhesive tape

(d) Ruler, pencil, sign pen, a pair of pliers, hammer, scissors.

iii) Outcomes

(1) Motivating the students in making something which is used in our every-day life.

(2) Emphasizing the advantages of making something for one-self.

Multi-Media Kit II

1. Title : Inquiry Model of Science Teaching.

2. Target : The kit is developed as a teacher training programme at elementary school level.

3. Aims : The Kit is designed to assist the elementary school teachers working in large classes.

   Its aims are:

   a) To introduce the concept of Inquiry Model of Science Teaching to elementary school teachers.

   b) To describe the teaching and learning steps in Inquiry model.

   c) To present an examplar lesson with application of Inquiry Model in a large class situation.

   d) To promote the teachers' competence in the use of Inquiry method in teaching large classes.

4. Components:

The kit comprises Explanatory Notes, a Teachers' Guide, and a Video cassettee tape.

a) *Explanatory Notes*

The Explanatory Notes are a printed material which includes some general information about the kit such as the aims, contents and the use of the kit.

b) *Teachers' Guide*

The Teachers' Guide is a printed material which introduces the concept and characteristics of the Inquiry Model of Science Teaching to elementary teachers. The contents are:

i) The concept of Inquiry Model of Science Teaching; and

ii) The characteristics of the Inquiry Model

iii) There are four teaching and learning steps in the Inquiry Model:

Step 1. Analyzing questions

Step 2. Forming hypothesis

Step 3. Gathering data

Step 4. Forming conclusions

c) *Video cassette tape*

The Video cassette tape shows an examplar lesson which adapts the Inquiry Model to the large class. The title of the lesson is 'Electromagnetic Force' which is a part of grade VI science curriculum in the Korean elementary schools.

The Video cassette tape records the teaching-learning activities following the above four steps: analyzing questions, forming hypothesis, gathering data and forming conclusions. The Video cassette in English runs for half an hour.

a) **Explanatory Notes**

i) Title : Inquiry Model of Science Teaching

ii) Target : The kit is a teacher training programme at elementary school level.

iii) Aims : The kit is designed to assist the elementary school teachers working in large classes. Its aim in general is to promote the teachers' competence of science teaching with the use of educational technologies.

More particularly, the aims of this kit are:

- To describe the use of educational technologies in large classes.
- To introduce the concept and stages of Inquiry Model of science teaching.
- To present an examplar lesson which adapts the Inquiry model to a large class situation. The title of the examplar lesson is 'Electromagnetic force' which is a part of grade VI science curriculum in Korean elementary schools.

Note

This video programme is one of the programmes of the series 'Teacher's Hour', produced by KEDI.

The original programme was edited and dubbed the Korean into English. The video programme runs for half an hour.

Multi-Media Kit III

1. Title : Experimental Model of Science Teaching.
2. Target : The kit is developed as a teacher training programme at elementary school level.
3. Aims : The kit is designed to assist the elementary school teachers working in large classes.

   Its aims are:

   a) To introduce the concept of Experimental model of Science Teaching to elementary school teachers.

   b) To describe the teaching and learning steps in Experimental model of Science Teaching.

   c) To present an examplar lesson with application of Experimental model in large class situation.

   d) To promote the teachers' competence in the use of Experimental Instruction technique in large classes.

4. Components:

The kit comprises Explanatory Notes, a Teachers' Guide, and a Video cassette tape.

a) *Explanatory Notes*

The Explanatory Notes are a printed material, which includes some general informations about the kit such as the aims, contents and the use of the kit.

b) *Teachers' Guide*

The Teachers' Guide is a printed material which introduces the concept and characteristics of Experimental model of Science Teaching to elementary teachers. The contents of the teachers guide are:

i) The concept of Experimental Model of Science Teaching.

ii) The characteristics of Experimental Model.

iii) There are three teaching and learning steps in Experimental Model:

Step 1. Open exploration

Step 2. Teacher-guided exploration

Step 3. Classification

c) *Video cassette tape*

The Video cassette tape shows an examplar lesson which adapts the Experimental model to a large class. The title of the lesson is 'Object and Matter' which is a part of the grade II science curriculum in Korean elementary schools.

The Video cassette tape records the teaching-learning activities following the above three steps: open exploration, teacher-guided exploration and classification.

The Video cassette in English runs for half an hour.

a) Explanatory Notes

i) Title : Experimental Model of Science Teaching

ii) Target : The kit is a teacher training programme at elementary school level.

iii) Aims : The video programme introduces the Experimental model of Science teaching in respects of how to use the educational technologies in large classes. Its aim in general is to promote the teachers' competence of science teaching with the use of educational technologies in large classes. More particularly, the aims of the video programme are:

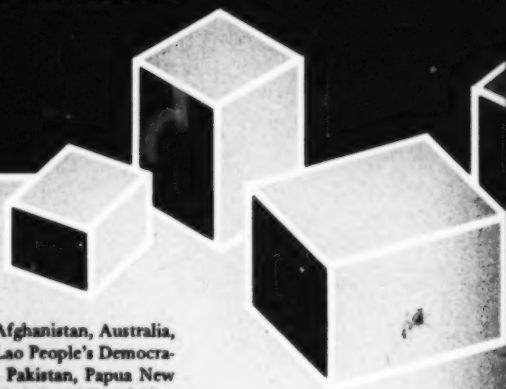
- To describe the use of educational technologies in large class.
- To introduce the concept and the phases of Experimental model of science teaching.
- To present an examplar lesson with application of the model in a large class. The title of the exemplar lesson is 'Object and Matter' which is a part of the 2nd grade science curriculum in Korean elementary schools.

Note

This video programme is one of the programmes of the series 'Teacher's Hour' produced by KEDI. The original programme recorded in Korean was edited in English. The video programme runs for half an hour.

The Asia and Pacific Programme of Educational Innovation for Development (APEID) has as its primary goal to contribute to the building of national capabilities for undertaking educational innovations linked to the problems of national development, thereby improving the quality of life of the people in the Member States.

All projects and activities within the framework of APEID are designed, developed and implemented co-operatively by the participating Member States through over one hundred national centres which they have associated for this purpose with APEID.



The 25 Member States participating in APEID are Afghanistan, Australia, Bangladesh, China, Fiji, India, Indonesia, Iran, Japan, Lao People's Democratic Republic, Malaysia, Maldives, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Samoa, Socialist Republic of Viet Nam, Sri Lanka, Thailand, Tonga, Turkey and Union of Soviet Socialist Republics.

Each country has set up a National Development Group (NDG) to identify and support educational innovations for development within the country and facilitate exchange between countries.

The Asian Centre of Educational Innovation for Development (ACEID), an integral part of the Unesco Regional Office for Education in Asia and the Pacific in Bangkok, co-ordinates the activities under APEID and assists the Associated Centres (AC) in carrying them out.

The programme areas under which the APEID activities are organized during the third cycle (1982-1986) are:

1. **Universalization of education: access to education at first level by both formal and non-formal means;**
2. **Education for promotion of scientific and technological; competence and creativity;**
3. **Education and work;**
4. **Education and rural development;**
5. **Educational technology with stress on mass media and low-cost instructional materials;**
6. **Professional support services and training of educational personnel;**
7. **Co-operative studies and innovative projects of research and research-based experimentation related to educational development.**